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HM-618

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Wolfgang Denker
Serial No: 10/528,324
Filed: March 18, 2005
For: LOW-FRICTION BENDING SYSTEM IN A ROLL STAND
COMPRISING SEVERAL ROLLS
Examiner: Dmitry Suhol
Art Unit: 3725

Mail Stop: Appeal Brief-Patents
Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

BRIEF ON APPEAL

S I R:

This appeal is taken from the Final Action mailed June 12,

2006.

01/22/2007 CCHAU1 00000083 10528324

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Real Party in Interest

The real party in interest in the above-identified application is:

SMS Demag AG
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Germany

Related Appeals and Interferences

There are no related appeals or interferences of which Applicants are aware regarding the above-identified application.

Status of Claims

Claims 1-4 are pending in the application and are subject to the present appeal. Claim 4 stands rejected under 35 U.S.C. 102(b) over U.S. Patent No. 6,112,569 to Ossendorf. Claims 1-3 stand

rejected under 35 U.S.C. 103(a) over U.S. Patent No. 6,112,569 to Ossendorf in view of U.S. Patent NO. 3,626,739 to Willeke et al.

Status of Amendments After Final Rejection

An Amendment after final was filed and entered by the Examiner upon filing of the present appeal.

Summary of the Claimed Subject Matter

The claimed invention will now be summarized with reference to the drawings being made by way of reference numerals and reference to the specification being made by page and line numbers.

The invention of claim 1 recites a device for bending the rolls in a rolling stand comprising several rolls (3, 3a) with the use of bending blocks (5, 5a, 5', 5a'), which are mounted at the run-in end and the runout end between the roll chocks (4, 4a) and the housing windows and can be acted upon by control elements (see page 4, lines 5-10 of the specification of the present

application, and Figs. 1-2). A piston-cylinder (7) is assigned to the bending blocks (5, 5a) of one of the mill housings (6) (see page 4, lines 11-13 and Figs. 1-2). A vertical positioning mechanism (10) is assigned to the bending blocks (5', 5a') of the opposite mill housing (6'), and is configured as a spindle-type lifting gear unit (see page 4, lines 8-10, and Figs. 1 and 2). Flatness control is accomplished by positioning and locking the bending blocks (5', 5a') with the spindle-type lifting gear unit (10), while the piston-cylinder (7), which connects the bending blocks 5 and 5a with each other, introduces the necessary bending forces (see page 4, line 18 - page 5, line 1).

The invention of claim 4 recites a device for bending the rolls in a rolling stand comprising several rolls (3, 3a) with the use of bending blocks (5, 5a, 5', 5a'), which are mounted at the run-in end and the runout end between the roll chocks (4, 4a) and the housing windows and can be acted upon by control elements (see page 4, lines 5-10 of the specification of the present application, and Figs. 1-2). A piston-cylinder (7) is assigned to the bending blocks (5, 5a) of one of the mill housings (6) (see page 4, lines 11-13 and Figs. 1-2). A vertical positioning

mechanism (10) is assigned to the bending blocks (5', 5a') of the opposite mill housing (6') (see page 4, lines 8-10), and is designed as wedges with restricted guidance, as a cylinder with a clamping head and position sensor, or as an eccentric shaft (see page 5, lines 2-6).

Grounds of Rejection to be Reviewed on Appeal

The following grounds are presented for review:

1. Whether claim 4 is anticipated under 35 U.S.C. 102(b) by Ossendorf.
2. Whether claims 1-3 are unpatentable over Ossendorf in view of Willeke.

ArgumentThe Rejection of Claim 4 under 35 U.S.C. 102(b):

In rejecting claim 4, the Examiner stated the following in the final rejection:

"Claim 4 is rejected under 35 U.S.C. 102(b) as being anticipated by Ossendorf '569. Ossendorf discloses a roll stand containing all of the claimed limitations including, with respect to claim 4, chocks (6), bending blocks (8, 9, 16 and 17), mill housing (7), piston cylinder (15), a vertical positioning mechanism (18) where it is considered that the shaft of the piston is eccentric to some portion of the device structure."

The presently claimed invention has the objective of improving upon prior art devices as taught, for example, by DE 22 50 953, mentioned in the specification of the present application. The prior art devices suffered from high frictional forces. The presently claimed invention uses a vertical positioning mechanism. It is respectfully submitted that the claims presently on file differ essentially and in an unobvious, highly advantageous manner from the constructions disclosed in the references.

Turning now to the reference, it can be seen that Ossendorf

discloses a bending device for four-high or multi-roll stands. As with DE 22 50 953, Ossendorf only uses piston-cylinder units. There is no disclosure of a vertical positioning mechanism as recited in the presently claimed invention. Specifically, Ossendorf does not disclose a piston-cylinder and a vertical positioning mechanism wherein the vertical lifting mechanism is wedges with restricted guidance, a cylinder with a clamping head and a position sensor, or an eccentric shaft, as in the presently claimed invention.

The Rejection of Claims 1-3 under 35 U.S.C. 103(a):

In rejecting claims 1-3, the Examiner stated the following in the final rejection:

"Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ossendorf '569 in view of Willeke et al '739. For purposes of claim 1, Ossendorf discloses a roll stand having chocks (6), bending blocks (8, 9, 16 and 17), mill housing (7), piston cylinder (15). The structural features of claim 3 are shown in figure 1 as piston 15.

Ossendorf fails to teach a vertical positioning mechanism being assigned to one set of bending blocks and configured as a spindle-type lifting gear unit as required by claim 1. However, Willeke discloses a device like that of Ossendorf which teaches that it is known to provide a vertical positioning mechanism configured as a spindle type lifting gear (15, 16) which are assigned to opposite sides of the device (figure 1). Therefore it would have been obvious to one having ordinary skill in the art

at the time of the claimed invention to have included the spindle type mechanism of Willeke in the device of Ossendorf for the purpose of acting as a screw down for the backing rolls."

As previously mentioned, the patent to Ossendorf discloses a bending device for four-high or multi-roll stands. Ossendorf only uses piston-cylinder units. There is no disclosure of a vertical positioning mechanism as recited in the presently claimed invention.

The patent to Willeke et al. discloses an apparatus for roll counter-deflection in rolling stands.

The Examiner combined these references in determining that claims 1-3 would be unpatentable over such a combination. Applicant respectfully submits that there is no motivation in either reference for making the combination argued by the Examiner so as to arrive at the presently claimed invention. In the prior art, as mentioned on page 2 of the specification of the present application, "the movable support of each end necessarily results in high frictional forces, which, in addition, have negative effects on the flatness control." Willeke et al. only teach spindle lifting devices. There is no recognition by either reference, or their combination, of the problems being addressed

in the present invention. There is no suggestion in either reference of a reduction of the movable bearing in order to reduce friction. Furthermore, neither reference, nor their combination, suggests combining a piston-cylinder and a spindle-type lifting mechanism in the same device, as in the presently claimed invention. Simply because both existed separately does not indicate that it is obvious to combine them into a single device. The only suggestion for doing so is given by the present application.

In view of these considerations it is respectfully submitted that the references do not teach the present invention.

Conclusion

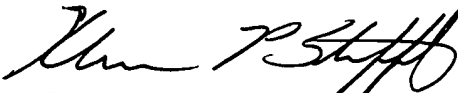
Accordingly, in view of the above considerations, it is Applicant's position that the Examiner's rejection of claim 4 under 35 U.S.C. 102(b) and his rejection of claims 1-3 under 35 U.S.C. 103(a) are in error and should be reversed.

The amount of \$500.00 to cover the fee for filing an appeal

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brief is being charged as per attached form PTO-2038. Any additional fees or charges required at this time in connection with this application should be charged to Patent and Trademark Office Deposit Account No. 11-1835.

Respectfully submitted,

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Dated: January 16, 2007

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, PO Box 1450 Alexandria, VA 22313-1450, on January 16, 2007.

By: 
Klaus P. Stoffel

Date: January 16, 2006

Claims Appendix

1. Device for bending the rolls in a rolling stand comprising several rolls with the use of bending blocks, which are mounted at the run-in end and the runout end between the roll chocks and the housing windows and can be acted upon by control elements, wherein a piston-cylinder (7) is assigned to the bending blocks (5, 5a) of one of the mill housings (6), and a vertical positioning mechanism (10) is assigned to the bending blocks (5', 5a') of the opposite mill housing (6'), the vertical positioning mechanism (10) being configured as a spindle-type lifting gear unit.

2. Device in accordance with Claim 1, wherein a roll change position can be vertically adjusted by the vertical positioning mechanism (10).

3. Device in accordance with Claim 1, wherein the piston-cylinder (7) comprises a piston (8) mounted in one of the bending blocks (5) and a connecting rod (9) to the other bending block (5a).

4. Device for bending the rolls in a rolling stand comprising several rolls with the use of bending blocks, which are mounted at the run-in end and the runout end between the roll chocks and the housing windows and can be acted upon by control elements, wherein a piston-cylinder (7) is assigned to the bending blocks (5, 5a) of one of the mill housings (6), and a vertical positioning mechanism (10) is assigned to the bending blocks (5', 5a') of the opposite mill housing (6'), wherein the vertical positioning mechanism (10) is designed as wedges with restricted guidance, as a cylinder with clamping head and position sensor, or as an eccentric shaft.

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Evidence Appendix

N.A.

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Related Proceedings Appendix

There are no related proceedings.